

Patent Claims

1. Apparatus for carrying out liquid-liquid micro extraction or liquid-liquid-liquid micro extraction with high enrichment, characterised in that it comprises

- a) a container for a sample solution having volume V_s with dissolved substance, analyte, to be analysed, *low* *same*
- b) a second container arranged in the first container, preferably a disposable container, having permeable membrane walls, for an acceptor solution, having volume V_a , wherein *what for when $V_a \rightarrow \infty$, or so?*
- 1) $V_s:V_a \geq 50$ and *ratio?*
- 2) about $1 \mu l \leq V_a \leq 50 \mu l$,
- c) stirring means, preferably a magnetic bar.

2. Apparatus according to 1, characterised in that the container for the acceptor solution is a microporous hollow fibre. *claim*

3. Apparatus according to claims 1 and 2, characterised in that the container is a hollow fibre of an active polymer. *orb 1, 2* *what one* *what?*

4. A method for liquid-liquid micro extraction with high enrichment by the use of the apparatus according to claim 1, characterised in that

- a) the container for acceptor solution is lowered into an acceptor solution so that the membrane wall is impregnated with and the container is filled with a defined volume of the acceptor solution, *what?*
- b) the container filled under a) is transferred to the container having a defined volume of the sample solution with the analyte that is sought,
- c) the sample solution with analyte is stirred until extraction equilibrium is established for the analyte in the two solutions, and *how occurs?*
- d) the acceptor solution containing enriched analyte is removed from its container for analysis of the analyte.

5.

A method for liquid-liquid-liquid micro extraction with high enrichment by the use of the apparatus according to claim 1, characterised in that

- a) the walls of the container for the acceptor solution are impregnated with, for immobilisation of, a liquid that is immiscible with the sample solution and the acceptor solution, *of solvent*
- b) the container for acceptor solution is filled with a defined volume thereof and
- c) is lowered into the container having a defined volume of the sample solution with the analyte that is sought,
- d) the sample solution with analyte is stirred until extraction equilibrium is established between *product sent*
 - i) the sample solution and the immobilised liquid, and
 - ii) the immobilised liquid and the acceptor solution, and
- e) the acceptor solution with enriched analyte is removed from its container for analysis of the analyte. *how?*

6.

one of
A method according to claims 4 and 5, characterised in that a microporous hollow fibre is used as the container for acceptor liquids.

7.

A method according to claim 5, characterised in that a microporous hollow fibre made of an active polymer is used as the container for the acceptor liquid.

8.

one of
A method according to claims 5 to 7, characterised in that both the sample solution and the acceptor solution are aqueous liquids.

9.

one of
A method according to claims 5, 6 and 8, characterised in that the liquid immobilised in the membrane is an organic liquid immiscible with aqueous liquids.
new sent

10.

A method according to claims 5 to 9, characterised in that the sample solution is a basic aqueous biological sample and the acceptor solution is an acidified, aqueous liquid for extraction of basic analytes.

11.

A disposable device for use in liquid-liquid micro extraction, characterised in that it has the form of a sponge body having defined pore volume for absorption of an immobilised acceptor solution for an analyte from a volume of a sample solution.

1. The first part of the report is a general introduction to the project, which includes a brief history of the organization and a statement of its mission.

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